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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,900	08/01/2003	Wilfried Clauss	007413-060	9807
21839	7590	04/07/2004	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			JOHNSTON, PHILLIP A	
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ALEXANDRIA, VA 22313-1404			PAPER NUMBER	

2881

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/631,900

Applicant(s)

CLAUSS, WILFRIED

Examiner

Phillip A Johnston

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3-31-2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Detailed Action

Claims Rejection – 35 U.S.C. 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Pub. No. 2002/0084422 to Kienzle, in view of Kamijo, U.S. Patent No. 6,566,663.

Kienzle (422) discloses deflector for charged particles having a magnetic lens assembly that utilizes a ferrite ring stack with a set of current carrying windings around the ferrite rings, as recited in Claims 1, 14 and 18-21. See Abstract, Paragraph's [0002], [0052], [0063] and [0064].

Kienzle (422) as applied above fails to teach that the permeability number is temperature dependent according to the following relationship;

$$\mu_{\max} - \mu_{\min} / \mu_{\max} \cdot \Delta T = c, \text{ with } c < 3 \cdot 10^{-3} \text{ K}^{-1}$$

where;

μ_{\max} is a maximum value of the permeability number in the temperature range,

μ_{\min} is a minimum value of the permeability number in the temperature range, and ΔT is a width of the temperature range.

However, Kamijo (663) discloses in FIG. 2 a plot of the relationship of the initial permeability μ_i of ferrite to temperature. The plot exhibits two peaks, of which the higher (right-hand) peak is called the "primary" peak and the lower (left-hand) peak is called the "secondary" peak. The apex (the extremum of Claims 9,10,15, and 16) of the primary peak is at a temperature just below the Curie point (T_c) of the ferrite. With ferrites, the Curie point is strongly dependent upon the specific composition and fabrication parameters of the specific ferrite material, but generally is approximately 200°C. i.e., the Curie point (and the position on the abscissa of the apex of the primary peak) can be changed by making changes in, for example, the composition of the ferrite material or the temperature at which the ferrite is fired. Also, the position on the abscissa of the apex of the secondary peak can be adjusted by making changes in the composition and/or fabrication parameters of the ferrite. By making these changes in one or both the primary and secondary peaks, the shape and location of the valley between the primary and secondary peaks can be changed as desired. See Column 8, line 12-34.

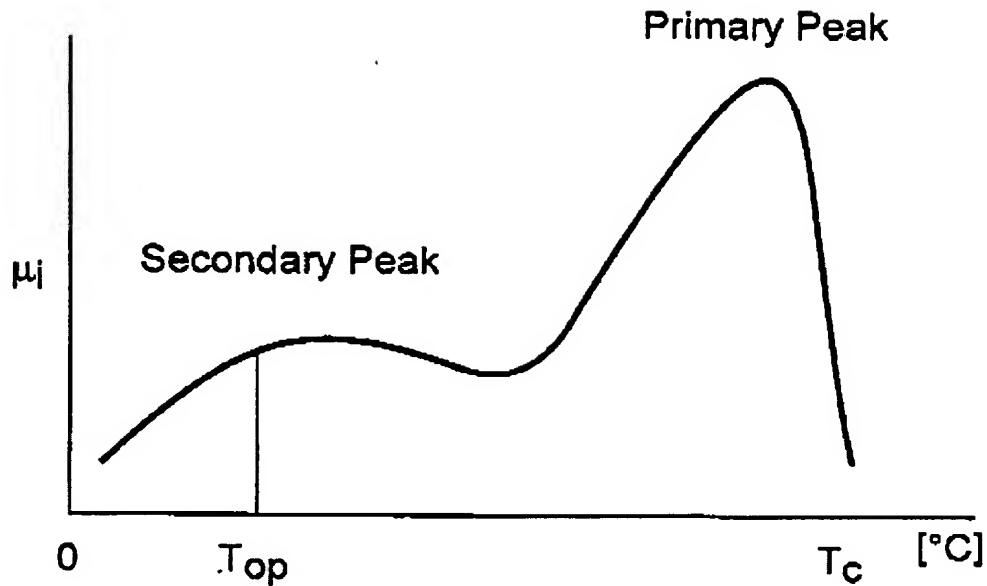


FIG. 2

Kamijo (663) further points out that the change in the slope of the curve of initial permeability μ_i accompanying a change in temperature at the normal operating temperature T_{op} can be set at will. See Column 8, line 51-65.

Kamijo (663) still further indicates that the normal operating temperature T_{op} of the ferrite desirably is lower than the temperature coordinate of the valley between the primary and secondary peaks of initial permeability μ_i . See Column 9, line 54-60.

Kamijo (663) also describes the use of ferrite B having an initial permeability of 7000 , where the rate of change of the initial permeability exhibited by ferrite B was 11

per unit($^{\circ}\text{C}.$) That is, $\Delta\mu$ (rate of change of permeability) for ferrite B was $4 \cdot 10^{-2}$ in the valley between the primary and secondary peaks. See Column 13, line 44-49.

Kamijo (663) discloses nearly all the limitations of Claims 1-8 and 14 but the values of c are different from " $c < 3 \cdot 10^{-3} \text{ K}^{-1}$ " as recited in Claims 1 and 14, and different from " $c < 9 \cdot 10^{-4} \text{ K}^{-1}$ to $c < 1 \cdot 10^{-6} \text{ K}^{-1}$ " as recited in Claims 2-8. However, Kamijo (663) above indicates that the value " c " is a results effective variable used to design a ferrite material having a permeability vs. Temperature curve that will suppress the effects of temperature fluctuations on the value of permeability whenever the magnetic field intensity is high.

Kamijo (663) is evidence that ordinary workers in the art of magnetic deflectors for charged particles would find the reason, suggestion, or motivation to make changes in the composition and/or fabrication parameters of the ferrite to change the shape of the Permeability vs. Temperature curve to obtain a desired temperature response.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to change the composition and/or fabrication parameters of the ferrite to produce a permeability vs. temperature curve having a small rate of change between the primary and secondary peaks in accordance with Kamijo (663) to obtain a temperature dependent permeability number that results in a rate of change " c " that is less than $3 \cdot 10^{-3} \text{ K}^{-1}$, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Therefore it would have been obvious to one of ordinary skill in the art that the magnetic lens assembly of Kienzle (422) can be modified to use the ferrite material in accordance with Kamijo (663), to provide a ferrite having increased temperature stability, so that the AC magnetic field intensity created by the deflector experiences no change with temperature.

Regarding Claims 11-13, Kienzle (422) in view of Kamijo (663) discloses the claimed invention except for the use of permeability numbers higher than 8000 and 10000. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the high permeability numbers recited in Claims 11-13, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller 105 USPQ 233.

Regarding Claim 17, use of a temperature-adjusting unit, as recited in Claim 17 is considered Applicants admitted prior art. See Applicants specification page 2, line 1-5, which states; "According to US 6,188,071 B1, a temperature control is provided to stabilize the temperature of the ferrite body in order to reduce influences of temperature on the quality of the lithographic process."


Conclusion

3. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (571) 272-2477. The fax phone numbers are (703) 872-9318 for regular response activity, and (703) 872-9319 for after-final responses. In addition the customer service fax number is (703) 872- 9317.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

PJ

March 31, 2004


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2300